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10/787,201	02/27/2004	Craig Allan Dunk	P1646US00	4692

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EXAMINER

HAILU, KIBROM T

ART UNIT	PAPER NUMBER
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2461

NOTIFICATION DATE	DELIVERY MODE
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12/21/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/787,201	Applicant(s) DUNK, CRAIG ALLAN	
	Examiner KIBROM T. HAILU	Art Unit 2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/15/2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/27/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on September 15, 2009 have been fully considered but they are not persuasive because the cited references disclose the claimed invention as set forth in the previous office action.

Applicant's arguments on page 2-6 of the Remarks/Arguments are not persuasive in view of the provided references and the following responses to the arguments, and therefore, the claims are not patentable.

Basically, the Applicant's argument is that Chapman doesn't disclose determining, responsive to the transmitting step failing, a quality of the link. The Examiner respectfully disagrees. The Applicant asserts that Chapman simply discloses a mechanism to determine when to reset the data link layers rather than resetting the link or data link.

First, it should be clear that resetting is simply repeatedly transmitting a frame for a predetermined time when not receiving an acknowledgement. Chapman clearly explains that the conventional technique, in which the data link is reestablished after a defined number of attempts to deliver the frame from one entity to another entity rather than evaluating the condition of the link by means of resetting it (please read col. 1, lines 42-63 and compare it with col. 1, line 66-col. 2, line 10). In fact, since it is the **data link** that fails to transmit, the resetting is for the data link, and of course, the resetting condition is done by the *data link layer* at one of the devices or entities (please also read col. 2, lines 3-33). Here is the exact quote:

“ In light of the foregoing, it is an object of the present invention to provide systems and methods for resetting a data link which has reduced overhead to more efficiently utilize system bandwidth.

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(8) This and other objects, features and advantages are provided according to the present invention by communications systems and methods in which an established Data Link is reset by communicating a frame indicating a reset condition from a first Data Link Layer at a first entity to a second Data Link Layer at a second entity and acknowledging the reset condition in a frame communicated from the second Data Link Layer to the first Data Link Layer, while continuing to maintain the Data Link. Preferably, the Data Link Layers include respective state machines which control the transmission and reception of frames, with the state machines including state variables corresponding to sequence numbers included in frames communicated between the Data Link Layers of the respective first and second entities. Upon failure to communicate a first and second frame between the Data Link Layers, for example, after a predetermined number of attempts, the state machines preferably are reset to predetermined states to restart the sequencing of frames between the Data Link Layers. A respective entity preferably includes a respective Store and Forward/Sync Layer above the corresponding Data Link Layer, which provides for storage of messages for which corresponding frames may be lost during reset of the Data Link, such that frames corresponding to the uncommunicated messages may be communicated after the Data Link is restored to a normal condition.

(9) According to the invention, indication of a reset condition can be carried in an information frame, rather than sending a reset command in a supervisory frame. Thus, the Data Link may be reset without requiring the overhead which may be associated with reestablishing the Data Link after a communications failure.

Second, it is true that the resetting mechanism or the repeatedly transmitting the frame is done by the data link layer at one of the entities. But, the whole point is determining the condition or the quality of the data link when it fails or when the repeatedly transmitted frame, via the data link, is not acknowledged. As clearly described above in col. 1, lines 42-63, herein, the Examiner submits that it is the data link, not the data link layer, which is failed. The resetting mechanism is done by the data link layer (that is why, in some instances it says 'resetting data link layer') to determine and evaluate the condition of the data link, not the data link layers at the two entities. As also cited in the previous office action, this is exactly what is illustrated in col. 6, lines 43-57.

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As to the Applicant's argument in response to 35 U.S.C. 112, second paragraph, the Examiner still maintains the rejection because it is not clear how an information, as the signal strength and reachability of base station, about the link quality be inherently available in the layer? Therefore, the phrase "information inherently available within a second layer" is not clear. As also reproduced by the Applicant, it is true that the phrase is mentioned in the specification. However, the Examiner respectfully submits that the usage of the phrase makes the limitation unclear.

Therefore, the claimed invention is not patentable and the Applicant's arguments are not persuasive in view of the provided references and the above responses to the Arguments.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 10 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite "information inherently available". It is not quite clear what is being claimed. What is the information inherently available? Can information be inherent?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 3, 10, 12, 16-22 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens (US 2004/0258039 A1) in view of Riedel et al. (US 7,289,453 B2) and further in view of Chapman et al. (US 5,926,468).

Regarding claims 1, 3 and 17-22, Stephens discloses a method of delivering packets over a link (Fig. 1; paragraphs [0025] and [0022]) comprising the step of: transmitting at least one packet over said link via a first layer of a protocol stack employed by said link (Fig. 1; paragraphs [0022]; [0029], packets are transmitted over the link. Note that it is inherent to transmit the packets over the transport layer of the OSI or seven layers, thus the name transport layer); determining a quality of said link at an electronic device by examining quality-of-service (QoS) information (paragraphs [0047], lines 1-9; [0049], the condition of the link 134 or the channels of the link is/are measured at the transmitting station); developing a retry strategy for said transmitting step based on said determined quality, and retransmitting said at least one packet according to said retry strategy (paragraphs [0047], lines 9-13; [0056]; [0060]-[0061]; [0055]-[0056], require retrying based on the quality or condition of the link. For example during the first portion transmitting an initial burst of packets; and if packet(s) fail(s), retrying during the second portion) wherein the transmitting station identifies a packet failure when it fails to

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receive of an expected response such as not acknowledged signal (paragraph [0049]); said packets are TCP (paragraph [0026], note that TCP is part of the Internet protocol); and said link is radio service (GPRS) wireless link (see Fig. 1, “link 134” or paragraph [0021]).

Stephens doesn't explicitly disclose repeating said transmitting step until said transmitting step fails and determining, responsive to said transmitting step failing, a quality of said link at the electronic device by examining the QoS information inherently available within a-second layer of said protocol stack; said second layer being a different layer in said protocol stack than said first layer.

Riedel teaches determining quality of the link by examining the QoS information inherently available within the data link layer or second layer of said protocol stack, said second layer being a different layer in said protocol stack than said first layer (col. 6, lines 36-60; col. 7, lines 7-22, explain monitoring QoS of the link at data link layer or layer 2, which is different from the transport layer or layer 4).

Riedel doesn't explicitly teach repeating said transmitting step until said transmitting step fails and determining, responsive to said transmitting step failing, the quality of said link.

Chapman teaches repeating said transmitting step until said transmitting step fails (Figs. 5-6A, steps 520-530 and 620-630; col. 6, line 65-col. 7, line 3, clearly illustrates continues to transmit the frames until the link fails or fails to receive acknowledgement) and determining, responsive to said transmitting step failing, the quality of said link (Figs. 5-6A, steps 530-550 or 630-660; col. 6, lines 38-57; col. 7, lines 3-20, clearly illustrating that the condition of the link is determined in response to failing of the transmitting step).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the technique of continuously transmitting packets until transmission fails and determining, in response to failing the transmitting step, QoS at data link layer (which is different from the transport layer) as taught by Riedel and Chapman in the wireless communication of Stephens in order to avoid the need to establish a new link each time a communication failure occurs and avoiding given that a failed link connection probably has been poor for a relatively long period of time before re-establishment is attempted, link re-establishment will likely also fail, thus wasting valuable bandwidth which could have been otherwise utilized to transport revenue-bearing traffic, and to keep an optimal wireless connection and inform the upper layers by the trigger event to initialize handover.

Regarding claims 10, 12, 16 and 28-32, the claims include the features corresponding to the subject matter mentioned above to the rejected claims 1, 3 and 17-22, and the same rejection is applied hereto.

6. Claims 2, 11, 23 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens in view of Riedel and Chapman, and further in view of Haas et al. (US 6,912,387 B2).

As applied above, the modified network communication of Stephens discloses transmitting packets until failure, retransmit the packet when failed according to the retry strategy, and continue transmitting if the retransmission acknowledged. However, the modified communication of Stephens doesn't disclose terminating said method if said re-transmitting step fails; the service used for delivery of said packets comprises a traditional PSTN type of telephone call, through the uses of appropriate PSTN gateways.

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Haas teaches terminating said method if said re-transmitting step fails (Figs. 2 and 3; col. 4, line 50-col. 5, line 8; col. 6, lines 2-13) and the service used for delivery of said packets comprises a traditional PSTN type of telephone call, through the uses of appropriate PSTN gateways (see Fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the technique of Haas, which teaches ending the transmission when the retransmitted packet determined failure based on the retrying and PSTN though the use of PSTN gateways into the modified communication of Stephens in order to avoid latency, and thus ensure reliability and throughput.

7. Claims 4-9, 13-15 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens in view of Riedel and Chapman, and further in view of Gage (US 2004/0151136 A1).

Regarding claims 4-5, 7-9, 13-15 and 27, the modified communication of Stephens discloses determining quality of a link at data link layer (layer 2) and transmitting the packets via transport layer (layer 4) of a protocol stack to deliver packets.

The modified communication doesn't explicitly disclose determining second quality of a second link; the qualities of the links is based on at least one of the measurements of reachability and availability of a given service used for delivery of said packets; determination of which link has a more desirable quality, the least financial cost, and transparent to performance of given service being used for carrying said packets.

Gage teaches determining second quality of a second link (paragraph [0029]; [0039]; [0042], etc, illustrates determining or measuring a quality of another link than the first one); the qualities of the links is based on at least one of the measurements of reachability and availability

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of a given service used for delivery of said packets (paragraph [0058]; claims 19 and 27); determination of which link has a more desirable quality, the least financial cost, and transparent to performance of given service being used for carrying said packets (paragraph [0029]; [0032]; [0038]) and select one of the links based on quality (paragraph [0010]; [0045], illustrates selecting a link with based on the predetermined quality value or criteria. Note also that since the modified communication of Stephens retry strategy based on the quality, it is obvious for a skilled person in the art to realize selecting the link according retry strategies that are based on the qualities on the links).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate and determine the qualities of plurality of links based on reachability and/or availability, desirability or preference, financial cost, transparent to performance as taught by Gage into the modified communication of Stephens in order to allow the wireless device to more efficiently roam between various communication links without repeated terminations and re-establishments of the network connection.

Regarding claim 6, Stephens discloses the service includes VOIP (paragraph [0036])

8. Claims 24-26 and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens in view of Riedel and Chapman, and further in view of Hyziak et al. (US 5,682,460).

As applied above, the modified communication of Stephens discloses retry strategy based on the determined quality of the link. However, the modified communication of Stephens doesn't explicitly disclose determined quality is a transmission profile, said transmission profile is a record of successful transmissions from said device or of signal strengths for a previous time period, said previous time period is 10 seconds.

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Hyziak teaches determined quality is a transmission profile, said transmission profile is a record of successful transmissions from said device or of signal strengths for a previous time period, said previous time period is 10 seconds (col. 4, line 62-col. 5, line 24, explains recording and reporting the status information such as successful delivery, failure, time of transmission or time stamp, elapsed time of transmission, quality of service, cost, acknowledgement and so on. Note also since Hyziak records the time of transmission (time stamp) and elapsed time of transmission, it is obvious for a person having skill in the art to realizing setting the previous transmission time to 10 seconds).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to develop a transmission profile by recording the transmission or information status in the previous time period or an elapsed time period as taught by Hyziak and incorporate it into the modified communication of Stephens in order to permit a communication system subscriber to select a set of preferences and associated constraints to be used during the transmission of information within said communication system for reasons such as, but not limited to: cost, security, urgency, reporting options, disposition requests, and/or spectral efficiency, thus the subscriber or the sender may desire to route information over the network exhibiting the highest throughput.

9. Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephens in view of Riedel, Chapman and Hyziak, and further in view of Upadrasta (US 6,771,594 B1).

Regarding claim 37, as applied above, the modified packet communication of Stephens discloses develop retry strategy and recording or profiling the transmission or information status.

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However, the modified communication of Stephens doesn't explicitly disclose computer processor configuring to develop said retry strategy as a mirror of said transmission profile.

Upadrasta teaches configuring to develop said retry strategy as a mirror of said transmission profile (col. 7, lines 48-50, illustrates the profile indicates number of retries and acknowledgements. In other words, retrying the TCP packets is according or mirror of the profile).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use retrying according to the user transmission profile as taught by Upadrasta into the modified packet communication of Stephens so that network conditions will be deemed to have improved and either reliable and/or non-reliable mode would be used or entered.

Regarding claim 38, which inherits claim 37, includes the features corresponding to the subject matter mentioned above to the rejected claim 27, and the same rejection is applied hereto.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIBROM T. HAILU whose telephone number is (571)270-1209.

The examiner can normally be reached on Monday-Thursday 8:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D. Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kibrom T Hailu/

Examiner, Art Unit 2461

/Jason E Mattis/

Primary Examiner, Art Unit 2461